Vol. 54, pp. 211–216 December 8, 1941

PROCEEDINGS

OF THE

BIOLOGICAL SOCIETY OF WASHINGTON

NOTES ON *TOXOSTOMA CURVIROSTRE* OF MEXICO, WITH DESCRIPTION OF A NEW RACE.

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A misconception of the relationship of the races of *Toxostoma curvirostre* in Mexico has hindered progress in our understanding of this group, a misconception due to lack of adequate material. With one hundred and twenty-eight recently taken specimens in the Moore Collection, covering every race, except that of extreme northeastern Mexico, from which last area fresh material has recently been received on loan, it is now possible to assess the characters of the races more correctly.

The chief misconception has been the belief that the bird of southern Sinaloa, *Toxostoma curvirostre occidentale* (type locality Mazatlan, Sinaloa) has white tips to the rectrices. Our very large series from Sinaloa proves that *occidentale* has grayish-brown tips, if any, there being only one specimen with a white tip out of thirty-five in our collection. Therefore, the chief character, on which Ridgway (Bull. 50, U. S. Nat'l Mus., Pt. IV, 202 and Key pp. 186–187) relied to distinguish between *occidentale* and *maculatum* of southern Sonora is non-existent. We have a single aberrant specimen, taken on April 5th within twenty miles of Alamos, type locality of *maculatum*, which has large immaculately white tips, just as we have one taken close to the type locality of *occidentale*, but all the rest of our large series of both races, even in fresh fall plumage, have either no tips or decidedly buffy ones. The true white-tipped birds seem to consist chiefly of two groups,—(1) those of the Central Plateau at high elevation, ranging from Guanajuato and Aguascalientes north, which in fresh plumage have immaculately white tips, and (2) those of northeastern and eastern Mexico; all of them east of the main Sierra Madres of Mexico, this section of the backbone of the continent being the dividing line between the white-tipped and buffy-tipped groups.

The undescribed form of the Central Plateau, lying between *oberholseri* to the north and true *curvirostre* to the south, is a larger bird than either,

having the tail longer than the wing, whereas in true *curvirostre*, as well as in the birds of eastern Mexico and in *oberholseri*, wing and tail are about equal. Since its validity is confirmed by other characters, it is herewith described.

My thanks are extended to Dr. George Miksch Sutton, to Mr. Zimmer and the American Museum of Natural History, to Dr. Herbert Friedmann and the United States National Museum, also to Mrs. Donald R. Dickey and Mr. Adrian van Rossem. By an exchange of courtesies the last, who requested the opportunity to examine our thirty-five specimens of *occidentale*, permitted the author to quote from his notes on Swainson's and Lichtenstein's types.

Toxostoma curvirostre celsum, subsp. nov.

PLATEAU THRASHER.

Type.—Female adult in worn breeding plumage; no. 19190, collection of Robert T. Moore; Laguna Juanota, southwest Chihuahua, Mexico; altitude more than 9000 feet; August 5, 1937; collected by Chester C. Lamb.

Subspecific characters.—Nearest to the races with white tail-tips, *Toxostoma curvirostre curvirostre* (Swainson) and *Toxostoma curvirostre oberholseri* Law, but differing from the former in larger size; in adult winter plumage, having breast and upper abdomen with more confluent spots (Hair Brown[1] instead of Drab); lower abdomen and under tail coverts buffier, more cinnamon; tips to outer rectrices apparently smaller and certainly whiter (pure white even in worn breeding plumage); upper parts darker gray, less brownish. Differs from *obholseri*, in larger size; generally more buffy on posterior under parts; spots on upper abdomen larger and always present. *Celsum* differs so obviously from *occidentale*, *maculatum* and *palmeri*, the three buff-tipped races to the west of the Sierra Madres, that no comparison is necessary, but I add that *celsum*, in addition to having white tips, although much smaller in length of tail, has a larger wing (in Guanajuato-Aguascalientes birds, markedly the largest of all the races); much larger spots on the breast and much less cinnamon on abdomen and under tail-coverts. In nuptial plumage it differs from *curvirostre* in having whiter ground color of upper abdomen; lower throat paler, more uniform with breast instead of darker; white tips of tail smaller; upper parts grayer, less brownish. It differs from the nuptial plumage of *occidentale* in having much whiter ground color of under parts and paler under tail coverts, as well as pure white tips, instead of buffy white ones; from *oberholseri* it differs in the same characters as in the winter plumage. If *Turdus deflexus* Lichtenstein represents a race in Hidalgo, differentiated from *T. c. curvirostre*, *celsum* differs from it in winter plumage in having spots on abdomen fewer and smaller; white tips to rectrices smaller; tail, proportionate to wing and absolutely, longer.

Range.—Southeastern Arizona (Chiricahua Mountains), thence east to southern New Mexico, thence south keeping east of the Sierra Madres

[1] Names of colors in this paper, when capitalized, are taken from Ridgway's "Color Standards and Color Nomenclature," 1912.

through Chihuahua and Durango, probably through Aguascalientes to northwestern Guanajuato and extreme northeastern Jalisco. The type from Laguna Juanota was taken at an altitude of more than 9000 feet, indeed, according to Mr. Lamb, "10,000 feet." This, apparently, is the highest altitude at which any race has been found. The Latin name, *celsum*, refers to the high range of this form.

AVERAGE MEASUREMENTS IN MM. OF *Toxostoma curvirostre celsum* AND ALLIED RACES.

Males	*Wing*	*Tail*	*Exposed Culmen*	*Tarsus*
2 ads. (*deflexum* ?)				
Hild.–Queretaro	109. (107.9–110.1)	109.9(108.6–111.2)	29.3(28.6–29.9)	32.3(32.2–32.4)
10 ads. (*Oberholseri*)[2]	102.9(98.3–108.4)	105.1(98.2–110.5)	28.0(25.8–29.9)	34.4(32.3–36.2)
18 ads. (*celsum*)				
Ariz. to Durango	109.7(103.4–117.0)	112.7(101.6–121.9)	30.5(27.1–32.5)	33.3(31.0–35.0)
10 ads. (*celsum*)[2]				
Chiricahua Mts.	108.9(103.8–112.5)	112.4(107.7–117.3)	31.1(29.1–32.9)	34.6(32.6–35.8)
13 ads. (*celsum*)				
Aguas. to N.W. Guanj.	112.0(107.5–116.6)	112.6(106.8–124.1)	30.5(26.9–32.8)	34.5(33.0–35.8)
7 ads. (*c. curvirostre*)	107.0(99.8–111.2)	106.9(104.8–111.9)	30.1(28.1–33.0)	33.4(32.2–35.4)
8 ads. (*maculatum*)	104.4(101.9–108.3)	115.5(111.1–119.9)	31.3(29.9–33.0)	33.9(31.9–35.8)
14 ads. (*occidentale*)	108.1(100.7–113.8)	119.0(112.4–124.9)	31.0(28.9–33.3)	34.5(32.4–36.7)
7 ads (*palmeri*)	105.8(102.3–108.9)	117.3(113.1–119.9)	32.2(30.8–34.3)	
Females				
3 ads (*deflexum* ?)	106.0(103.4–107.6)	103.9(100.8–105.7)	28.5(27.4–30.6)	32.0(31.8–32.4)
15 ads. (*oberholseri*)	100.5(96.7–106.2)	102.5(97.0–105.0)	29.1(27.8–32.2)	32.0(30.7–34.2)
20 ads. (*celsum*)				
Ariz.–Durango	107.7(100.3–115.1)	111.8(106.0–117.5)	30.0(27.4–32.0)	32.9(31.2–34.7)
15 ads. (*celsum*)				
Aguas. to N.W. Guanaj.	108.8(105.1–113.6)	110.6(105.1–117.0)	28.5(27.0–31.2)	32.4(29.3–34.4)
5 ads. (*curvirostre*)	105.2(99.5–111.4)	105.3(99.1–112.8)	29.3(27.8–31.2)	33.1(30.4–35.0)
8 ads. (*maculatum*)	99.9(99.6–101.5)	113.2(110.2–114.2)	30.1(27.6–33.3)	32.8(30.1–33.5)
10 ads. (*occidentale*)	103.9(101.2–107.1)	115.3(110.5–118.5)	31.6(29.5–34.8)	34.3(32.3–36.6)
4 ads. (*palmeri*)	104.8(103.8–106.4)	115.3(114.3–116.2)	30.5(29.6–30.8)	

Remarks.—*Celsum* is chiefly a denizen of the high arid plateau of central Mexico at an altitude of 5000 to at least 9000 feet, wherever there are plains with occasional streams. Like many species of the Central Plateau, particularly those of Guanajuato, this race has an unusually large wing. A series of 17 specimens, collected by Batty for the American Museum of Natural History, are badly faded and of slight use for comparison of coloration. The thirteen males and fifteen females taken between northwestern Guanajuato-Aguascalientes and the extreme northeastern projection of Jalisco, are tentatively determined as *celsum*, although they have even larger wings, the largest of any group of *curvirostre*, and seem to have heavier (almost contiguous) blotching on the breast and lower throat. These lie geographically between typical *celsum* to the north and the smaller true *curvirostre* to the south, whose range our series proves is restricted to a narrow east-west geographical belt from the western part of the state of

[2] Above measurements given by J. Eugene Law (Condor, Vol. XXX, March, 1928, p. 151). My measurements of apparently the same birds from the Lower Rio Grande are almost identical.

Mexico (Temascaltepec) through Michoacan to eastern Jalisco. West of Atoyac, at Tapalpa, individuals of *curvirostre* show intergrading characters with *occidentale*. The final determination of this excellent series from the Guanjauato-Aguascalientes area must await the collecting of more birds from Hidalgo and eastern Mexico.

For the Hidalgo-San Luis Potosi birds, I am employing tentatively Lichtenstein's name *deflexum*. According to van Rossem's memorandum concerning Lichtenstein's two co-types (see in addition his brief statement: Bull. Mus. Comp. Zool., Vol. 77, No. 7, 1934, p. 416), number 3655 from Chico [Hidalgo], accords better with Lichtenstein's description of "white-gray" under parts, whereas number 3656, the co-type from Temascaltepec, "is definitely buffy on the posterior under parts and more heavily spotted." My two series from Temascaltepec and Hidalgo confirm these differences, the Hidalgo birds having whiter ground color on upper abdomen, less buffy lower abdomen and undertail coverts and much heavier (larger) spotting on upper abdomen and lower throat. It would seem, then, that the name *turdus deflexus* Lichtenstein might well be restricted to specimen number 3655 from Chico. I hesitate at the present time to take this step, as I have not seen birds from the Valley of Mexico, which may be the same as those from Hidalgo and may have to be known by the name of *T. curvirostre curvirostre*.

In a recent letter (Oct. 30, 1941) to me, van Rossem asserts that Swainson's locality "Tableland" for types such as *Orpheus curvirostre*, "boils down to one of three places, Valley of Mexico where most of Bullock's time was spent, Puebla where a few birds were collected, and Cofre de Perote, where he spent about a month. He speaks of all three as Tableland." Although this conclusion might be accepted for designating the type locality of a race, known to occur at one of these localities and *not* at Temascaltepec, it does not seem desirable to choose one of them for the type locality of *Orpheus curvirostre* and designate it, when a Curve-billed Thrasher, fitting our meager knowledge of the type, is found at Temascaltepec. The type should be re-examined and compared with freshly-taken specimens from Temascaltepec and the other above-mentioned localities. Van Rossem's memorandum of his examination of Swainson's type does not cover the characters which chiefly differentiate Hidalgo and Temascaltepec birds, except the measurements, which, for the type, are shown as "wing 114.0, tail 113.0." Although this is larger than any of my five Temascaltepec individuals, it is nearly approached by one adult female, which has wing 111.4 mm. and tail 112.8 mm. Tentatively I am employing Swainson's name for these birds, believing this preferable to coining a new name, or "stretching" the application of *Toxostoma vetula* Wagler to birds of the southern end of the Central Plateau, the types of which name Hellmayr (Pub. Field Mus. Nat. Hist., Vol. XIII, Pt. VII, p. 299, footnote) states "agree with birds from Veracruz (Perote) and Oaxaca, which I have not seen."

It should be emphasized that *celsum* is not an intermediate, being larger than either true *curvirostre* to the south, or *oberholseri* to the north. A specimen, number 117720 (U. S. Nat. Mus.) from San Luis Potosi is large

and heavily spotted on the breast like the birds of Hidalgo (*deflexum* ?), while number 10504 in the Cornell University Collection from near Monterrey, Nuevo Leon, reported by Sutton (Occas. Pap. Mus. Zool. La. St. Univ. No. 3, p. 37) as *oberholseri* has the small size and lightly spotted abdomen and breast of that race. Three birds obtained by the author's expedition at Guayachi and the Barranca del Cobre at high altitude in extreme southwestern Chihuahua, in spite of the geographical closeness to *maculatum* of the coastal plains, have white tail-tips and are practically pure *celsum*. It should be noted that van Rossem (Trans. San Diego Soc. of Nat. Hist., Vol. VI, No. 19, p. 275) gave measurements for "ten adult male *maculatum* from Sonora," showing the wing 106.6 and tail 122.0 mm. These tail measurements are much larger than those revealed in my tables, for my eight adult birds, all of which were taken within forty miles of the type locality, Alamos. This is possibly explained by van Rossem's inclusion of birds from central Sonora, north as far as Tecoripa. A *celsum* male, number 22138 Moore Collection, is partially albino, having fifth to the second primaries, counting from the outside, on the right wing and fifth to the third primaries on the left wing, pure white.

T. c. maculatum (Nelson) (type locality Alamos, Sonora) is recognizable chiefly on ground of average wing and tail measurements being smaller than either *occidentale* or *palmeri*. The ground color of the upper abdomen *only* in a majority of specimens, is also slightly darker than in *occidentale*. The tips of the rectrices do not differ from those of *occidentale* and as to its being *generally* "darker," there are too many individuals taken close to the type localities of each, which are identical. In any event, *maculatum* has a very restricted range and birds from northeastern Sinaloa, not thirty miles away from the type locality, are true *occidentale*. It extends farther south into northwestern Sinaloa, a series from Ahome to Culiacan being variously intermediate.

Occidentale does not seem to reach an altitude over 3000 feet in Sinaloa. It extends into Durango at elevations approximately this, apparently where the birds of the Coastal Plains can follow up the rivers without reaching high altitude. Our group of specimens from Tamazula, Durango, at an elevation of 2800 feet, illustrates this type of fluvial penetration and are typical *occidentale*, although geographically close to *celsum* on the upland plateau.

Specimens examined.—Of the following specimens, all are in the Moore Collection, unless enclosed in brackets:

Palmeri—Arizona: Fresnal 1 ♀ [Dickey Col.—Arizona: Ft. Lowell 3 ♂, Continental 2 ♂ 3 ♀, Santa Cruz River 1 ♂ 1 ♀, East Slope Baboquivari Mts. 1 ♂ 1 ♀; Sonora: Saric 1 ♂]. *Maculatum*—Sonora: Tecoripa 1 ♀ (Nov. 13), Agiabampo 1 ♂ 2 ♀ (Apr. 19–25), Guirocoba 1 ♀ (Jan. 20), Sinaloa: El Orito 1 ♂ (Mar. 14), Cienaquita 2 ♂ (Apr. 13), La Guasimas 1 ♂ 2 juv. ♀ (July 1–19), Colmoa 1 ♂ 1 ♀ juv. ♀ (July 28–Sept. 3), El Fuerte 1 ♀ (May 14 nesting), Palmar 1 ♀ (Nov. 30), Yecorato 1 ♂ (Apr. 29). Intergrades *maculatum* x *occidentale*—Sinaloa: Los Leones 1 ♂ 1 ♀ (Apr. 5), Guamuchil 1 im. ♀ (Oct. 2), Ahome 1 ♀ 1 im. ♀ (Aug. 4–Sept. 11), Rancho El Padre 2 ♀ (Nov. 22–26), Copalitos 2 ♂ 1 ♀ (July

22–Aug. 4). *Occidentale*—Sinaloa: El Molino 3 ♂ (Nov. 3, Feb. 23–May 16), Culiacan 3 ♂ 3 ♀ 1 im. ♂ (Apr. 15–Feb. 27), Reforma 1 ♂ 1 ♀ (Apr. 18), Badiraguato 2 ♂ (Jan. 4–10), Cacalotan 1 ♀ (Feb. 12), Matatan 1 ♂ (Apr. 23 breeding) Vado Hondo 1 ♂ (Mch. 30 breeding), Quelite 1 ♂ (Feb. 9), San Lorenzo 1 ♂ (Jan. 15), Rosario 3 ♂ 3 ♀ (Sept. 8–Feb. 26), Iguana 2 ♂ (Feb. 20–22), Elota 1 ♂ (Mch. 25); Durango: Tamazula 2 ♀ 1 im ♀ (Nov. 25–Dec. 9); Nayarit: Tepic 1 im. ♀ (June 20). *Celsum*—Guanajuato: Puerte de Guadalupe 1 ♂ 4 ♀ (May 13–21 breeding), Rancho Enmedio 4 ♂ 4 ♀ (May 1–2 breeding, Jan. 28–Feb. 2), Irapuato 6 ♂ 5 ♀ 1 im. ♂ (Apr. 6 breeding, Sept. 10–Jan. 19); Aguascalientes: San Jacinto 3 ♂ 1 ♀ (Oct. 11–21); extreme N. E. Jalisco: Lagos de Moreno 2 ♀ (Oct. 30–Nov. 3); Durango: Ojito 2 ♂ 1 ♀ (Aug. 21–26) [Col. Am. Mus. N. H.—Rio Sestin 1 ♂ 3 ♀ (Apr. 9– May4), Rancho Baillon 2 ♂ 1 ♀ (May 6–9), Arroyo del Buey 1 ♀ (May 28), Las Bocas 2 ♂ 2 ♀ (Feb. 8–11), Rosario 1 ♂ (Jan. 24), Santuario 1 ♂ 1 ♀ (Feb. 16–22), Cienega de las Vacas 1 ♀ (Mch. 28), La Boquilla 1 ♀ (Feb. 14]. Chihuahua: Laguna Juanota 1 ♂ 1 ♀ (Type) 2 ♀ (Aug. 2–5), Tohuariqui 1 ♂ 1 ♀ (May 10–18 breeding), Guayachi 1 ♀ (May 26 nesting). [Dickey Col.—Arizona: Chiracahua Mts.: Whitetail Canyon 1 ♂, Pinery Canyon 1 ♂ Buckhorn Canyon 1 ♀, "Chiracahua Mts." 1 im. ♂; Fairbanks 1 ♀, Tucson 1 ♂ (van Rossem states taken farther east). Col. U. S. Nat. Mus.—New Mexico: Lone Mt. 3 ♂ 3 ♀ 2 ♂ juv. (July 17– Sept. 29), Silver City 1 ♀ (Nov. 5).] *Curvirostre*—Mexico: Temascaltepec 3 ♂ 1 ♀ (July 16–Aug. 5 breeding; Michoacan: San Augustin 1 ♂ 1 ♀ (Feb. 11–14), near Uruapan 2 ♂ 1 ♀ 1 juv. ♂ im. ♀ (June 10–July 3), Zacapu 1 ♂ 1 ♀ 1 im. ♀ (Aug. 20–Sept. 7); Jalisco: near Atoyac 3 ♂ 2 ♀ (Feb. 23–Mch. 7). *Curvirostre* x *occidentale*, nearer *curvirostre*—Central Jalisco: Tapalpa 1 ♂ 2 ♀ (Apr. 1–10 breeding), Guadalajara 1 ♀. *Deflexum?* Hidalgo: Portezuelo 1 ♂ 1 ♀ (Dec. 13–14); Queretaro: El Caracol 1 ♂ 1 ♀ (Dec. 3–5); [U. S. Nat. Mus. Col.—San Luis Potosi: San Luis Potosi 1 ? (Feb.)]. *Oberholseri*—[Dickey Col.—Texas: Laredo 1 ?; U. S. Nat. Mus. Col.—Texas: Ft. Clark 1 ♂ 4 ♀ (Dec. 28–Mar. 6), Rio Grande City 1 ♂ 1 ♀ (Mar. 12–Apr. 26), Hidalgo 1 ♂ 1 ♀ (Apr. 17–May 5), Lomita 1 ♀ (Apr. 10), Laredo 3 ♂ 1 ♀ (June 2–12, Nov. 21), Brownsville 8 ♂ 6 ♀ (Jan. 1–May 1), Point Isabel 1 ♂ 1 ♀ (Nov. 26–30), "Texas" 1 ♂; Nuevo Leon: Monterrey 1 ♂ (June 18); Cornell Univ. Col.—near Monterrey 1 ♀ (Feb. 3).]

Since the paper, "New Form of *Toxostoma* from Hidalgo" (Proc. Bio. Soc. Wash., 54, pp. 149–150) was forwarded to the publisher, the author, thanks to the courtesy of George Willett and Adrian van Rossem, has compared the type of the new race, *Toxostoma dorsale dumosum*, with additional specimens in the Los Angeles Museum and the Donald R. Dickey Collection from areas near the type locality, Rincon, New Mexico. The size difference seems much greater than originally believed; the wing and tail are ten per cent shorter and the feet obviously very much smaller.